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**DEPARTMENT OF THE NAVY
JUSTIFICATION OF ESTIMATES
AMENDED FY 1988/1989 BIENNIAL BUDGET**



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SUBMITTED TO CONGRESS FEBRUARY 1988

PROCUREMENT

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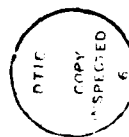
AIRCRAFT PROCUREMENT, NAVY

Department of the Navy
Aircraft Procurement, Navy
Justification of Amended Estimates for Fiscal Year 1989

TABLE OF CONTENTS

Budget Appendix Extract	Page No. 1-1
Budget Activity Descriptions and Justifications:	
Activity 1 - Combat Aircraft	2-1
Activity 2 - Airlift Aircraft	2-8
Activity 3 - Trainer Aircraft	2-9
Activity 4 - Other Aircraft	2-10
Activity 5 - Modification of Aircraft	2-12
Activity 6 - Aircraft Spares and Repair Parts	2-23
Activity 7 - Aircraft Support Equipment and Facilities	2-29
Comparison of Program Requirements and Financing	3-1
Status of Aircraft Modification Programs	4-1

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7. Navy Procurement Strategic Data

AIRCRAFT PROCUREMENT, NAVY

For construction, procurement, production, modification, and modernization of aircraft, equipment, including ordnance, spare parts, and accessories therefor; specialized equipment; expansion of public and private plants, including the land necessary therefor, and such lands and interests therein, may be acquired, and construction prosecuted thereon prior to approval of title; and procurement and installation of equipment, appliances, and machine tools in public and private plants; reserve plant and Government and contractor-owned equipment layaway; [\$9,522,299,000] \$8,980,000,000, of which \$76,000,000 shall be available only for the Navy Reserve and Marine Corps Reserve, to become available for obligation on October 1, 1988 and to remain available for obligation until September 30, 1991. (10 U.S.C. 5013, 5063, 7201, 7341; Department of Defense Appropriation Act, 1988, as included in Public Law 100-202; additional authorizing legislation to be proposed.)

Legislation passed by Congress (H.R. 1000) passed by President

Financing

The FY 1989 budget plan of \$8,980,000,000 for the Aircraft Procurement, Navy appropriation is to be financed by new obligational authority.

Aircraft Procurement, Navy
Program and Financing (in Thousands of dollars) SUMMARY

Identification code	17-1506-0-1-051	Budget Plan (amounts for PROCUREMENT actions programmed)			Obligations		
		1987 actual	1988 est.	1989 est.	1987 actual	1988 est.	1989 est.
Program by activities:							
Direct program:							
00.0101	Combat aircraft	5,662,419	5,728,174	5,619,933	6,430,237	5,071,657	5,266,967
00.0201	Airlift aircraft	98,180			117,731	15,361	3,391
00.0301	Trainer aircraft	55,216	368,110	415,944	77,164	319,982	404,543
00.0401	Other aircraft	317,545	401,918	350,069	297,670	332,759	352,691
00.0501	Modification of aircraft	1,403,648	924,016	915,993	1,657,417	1,129,060	1,059,954
00.0601	Aircraft spares and repair parts	1,638,615	1,436,913	1,162,606	1,668,843	1,184,104	1,168,168
00.0701	Aircraft support equipment and facilities	506,739	559,168	515,455	550,883	607,601	537,469
00.9101	Total direct program	9,682,362	9,418,299	8,980,000	10,799,945	8,660,524	8,793,183
01.0101	Reimbursable program	9,550	1,545	1,591	4,393	24,384	1,591
10.0001	Total	9,691,912	9,419,844	8,981,591	10,804,338	8,684,908	8,794,774
Financing:							
Offsetting collections from:							
11.0001	Federal funds(-)	-9,481	-1,030	-1,061	-3,184	-1,030	-1,061
13.0001	Trust funds(-)	-93	-515	-530	2,102	-515	-530
14.0001	Non-Federal sources(-)	24			27		
17.0001	Recovery of prior year obligations				-203,627		
21.4002	Unobligated balance available, start of year:						
21.4003	For completion of prior year budget plans				-2,832,609	-1,439,756	-2,174,692
21.4007	Available to finance new budget plans	-620,550	-421,300		-620,550	-421,300	
22.4001	Reprogramming from/to prior year budget plan	-475,560					
22.4001	Unobligated balance transferred to other acc	315,763	3,000		315,763	3,000	
24.4002	Unobligated balance available, end of year:						
24.4003	For completion of prior year budget plans	421,300			1,439,756	2,174,692	2,361,509
25.0001	Available to finance subsequent year budget	45,047			421,300		
25.0001	Unobligated balance lapsing				45,047		
39.0001	Budget authority	9,368,362	8,999,999	8,980,000	9,368,362	8,999,999	8,980,000
Budget authority:							
40.0001	Appropriation	9,977,262	9,522,299	8,980,000	9,977,262	9,522,299	8,980,000
40.0017	Appropriation rescinded	-578,900	-418,300		-578,900	-418,300	
41.0001	Transferred to other accounts(-)	-30,000	-104,000		-30,000	-104,000	
43.0001	Appropriation (adjusted)	9,368,362	8,999,999	8,980,000	9,368,362	8,999,999	8,980,000

Navy

Aircraft Procurement, Navy
Object Classification (in Thousands of dollars) SUMMARY

Identification code	17-1508-0-1-051	1987 actual	1988 est.	1989 est.
Direct obligations:				
Other services:				
125.002	Purchases from industrial funds	39,504	37,540	9,850
126.001	Supplies and materials	1,447,193	1,215,091	1,243,863
131.001	Equipment	9,313,248	7,407,893	7,539,470
199.001	Total Direct obligations	10,799,945	8,660,524	8,793,183
Reimbursable obligations:				
231.001	Equipment	4,393	24,384	1,591
299.001	Total Reimbursable obligations	4,393	24,384	1,591
999.901	Total obligations	10,804,338	8,684,908	8,794,774

Budget Activity 1: Combat Aircraft

	(In Thousands)
FY 1989 Amended Estimate	\$5,619,933
FY 1989 Change	\$-1,302,669
FY 1989 Initial Estimate	\$6,922,602
FY 1988 Estimate	\$5,728,174
FY 1987 Actual	\$5,732,594

Purpose and Scope of Work

Navy and Marine Corps combat aircraft are procured under this budget activity. These aircraft include fixed-wing and rotary configurations and are grouped generally into the categories of attack, fighter, and anti-submarine warfare (ASW). In addition to these general categories, aircraft which directly support combat operations in specialized missions, such as aerial assault, command and control, search and rescue, reconnaissance, observation, electronic warfare, airborne mine countermeasures, vertical onboard delivery and early warning are also procured in this budget activity. Funds are budgeted to procure fully equipped aircraft, including engines and avionics equipment, special ground support and training equipment, and technical publications.

Advance procurement funds are also included to finance long lead time effort, materials, and equipments for the following year program, as well as for multiyear procurement of the AV-8B airframe.

Justification of Funds

Funds for procurement of eight different combat aircraft models, including one attack, one fighter, one strike fighter, three helicopters, one electronic warfare, and one early warning type are budgeted in FY 1989. Funds are also included in this budget request for FY 1989 advance procurement requirements for aircraft scheduled for procurement in FY 1990 including requirements continuation of a multiyear procurement. FY 1989 advance procurement funds in support of FY 1990 procurements include long lead requirements for a vertical take off and landing aircraft and attack aircraft (i.e. A-6 upgrade). The amounts shown below finance: (1) aircraft procurement; (2) advance procurement which is justified separately at the end of the budget activity; and (3) aircraft initial spares and repair parts which are budgeted and justified in budget activity 6.

A-6 UPGRADE (Attack) INTRUDER

	(Dollars in Millions)		
	FY 1988	FY 1989	
	Qty	Qty	Qty
Procurement	10	425.9	-
Advance Procurement		20.0	-
Initial Spares		13.1	-
			6.4

A-6 UPGRADE (Attack) INTRUDER cont'd

The A-6 is a highly effective attack aircraft. It is equipped with the Target Recognition Attack Multisensor (TRAM) system which gives the A-6 the capability of very accurate night/all weather delivery of nuclear and non-nuclear weapons as well as a night surveillance and identification capability. The A-6 Upgrade is an improved version of the A-6E which incorporates improvements in reliability, performance and survivability through improved avionics and propulsion.

The A-6 Upgrade incorporates the following improvements: a high resolution radar for improved standoff targeting, improved J-52-P408A engines, modern digital avionics Night Attack Navigation System, Advanced Self Protection Jammer (ASPJ), the composite wing, and the EA-6B tail structure. The A-6 Upgrade has been structured as a remanufacture program with A-6E airframes provided as government furnished equipment. The FY 1988 program provides for ten remanufactured aircraft at a cost of \$445.9 million which includes \$20.0 million of advance procurement funds for a follow on procurement of 15 aircraft in FY 1990. There is no procurement request in FY 1989.

A-12 (Attack)

(Dollars in Millions)			
FY 1988		FY 1989	
Qty	Amt	Qty	Amt
Details Classified			

The A-12 Advanced Tactical Aircraft is an attack aircraft which will replace the A-6 Intruder beginning in the mid-1990's. Incorporating industry's newest technologies, the A-12 will exceed the A-6 in performance and survivability.

EA-6B (Electronic Warfare) PROWLER

(Dollars in Millions)			
FY 1988		FY 1989	
Qty	Amt	Qty	Amt
12	431.2	9	473.6
Procurement			
Advance Procurement	22.7		18.3
Initial Spares	4.2		19.0

The carrier-based EA-6B is an advanced electronic warfare (EW) aircraft which provides protection to Navy strike aircraft by jamming enemy radar-controlled weapons. Funding of \$473.6 million is requested for nine aircraft in FY 1989. This continues the procurement of modern tactical EW aircraft for the Navy and Marine Corps.

Special Aircraft

(Dollars in Millions)		
FY 1988		
Qty	Amt	Qty Amt
Details Classified		

AV-8B (Attack) HARRIER (MYP)

(Dollars in Millions)		
FY 1988		
Qty	Amt	Qty Amt
24	425.6	24 479.2
Procurement		
Advance Procurement		
Initial Spares		
	150.0	40.2
	52.0	49.0

The AV-8B is an improved vectored thrust V/STOL aircraft based on the AV-8A concept and the Pegasus II engine which has up to twice the range or payload of the older HARRIER. It combines aerodynamic improvements with a new stability augmentation system to reduce pilot workload and incorporates the Angle Rate Bombing System for increased weapon delivery accuracy, thus providing a more capable and reliable light attack aircraft. The AV-8B meets the Marine Corps' requirement for a light attack aircraft which can operate from austere forward sites in direct support of ground forces.

The FY 1989 request of \$479.2 million is for 24 aircraft to continue to build up the inventory level to support Marine air groups. This will be the first year of a three year multiyear contract for the AV-8B airframe at 24 aircraft per year. A total savings of \$124.0 million is expected to result from this multiyear strategy.

F-14A/D (Fighter) TOMCAT

(Dollars in Millions)		
FY 1988		
Qty	Amt	Qty Amt
12	650.0	12 795.0
Procurement		
Advance Procurement		
Initial Spares		
	84.3	84.8
	65.8	30.2

The F-14 is a high performance, fleet air defense/air superiority fighter. It is a two place, tandem seat, variable sweep wing, supersonic, carrier-based airborne weapons system. The F-14A has visual attack and all-weather capability to deliver PHOENIX and SPARROW missile. It also employs the M-61 gun and SIDEWINDER missile for close-in air-to-air combat.

FY 1988 is the first year of procurement of the F-14D configuration which includes the new General Electric F-110 GE-400 engine, a new radar (APG-71) and upgraded avionics. The last seven aircraft bought in FY 1988 are the "D" configuration. The FY 1989 request of \$795.0 million will procure an additional 12 F-14D aircraft to continue the Navy's fighter modernization program and maintain force levels.

F/A-18 (Strike Fighter) HORNET

(Dollars in Millions)			
FY 1988		FY 1989	
Qty	Amt	Qty	Amt
84	2,146.9	72	2,147.3
	140.0		139.4
	112.9		72.6
Procurement			
Advance Procurement			
Initial Spares			

The F/A-18 Naval Strike Fighter is a twin-engine, mid-wing, multimission tactical aircraft. Designed to replace the F-4 PHANTOM and A-7 CORSAIR, the F/A-18 will be employed in Navy Strike fighter squadrons and Marine Strike fighter squadrons. Two-seat versions with a Night Attack/Austere All-Weather capability are being built. Plans include a version for tactical reconnaissance. The F/A-18 is missionized through selected use of external equipment to accomplish specific fighter or attack missions. This commonality offers the Operational Commander more flexibility in employing his tactical aircraft in changing scenarios. The primary design missions are fighter escort and interdiction with fleet air defense and close air support as additional roles. Since on attack missions the same airframe, engine, flight control, and weapon systems are used as on fighter missions, excellent fighter and self defense capability is retained. The FY 1989 request includes the incorporation of RECCO airframe provisions, the purchase of the first (of 21) reconnaissance side looking radar (SLR)/data-link pods, full HARPOON, OBOGS, ASN-139 (Navigation System), extended weapons capability and a radio upgrade (HAWQUICK).

CH/MH-53 (Helicopter) SUPER STALLION (MYP)

(Dollars in Millions)			
FY 1988		FY 1989	
Qty	Amt	Qty	Amt
14	202.7	14	195.0
	21.8		
	26.9		12.6
Procurement			
Advance Procurement			
Initial Spares			

The FY 1988/1989 budget includes continued procurement of the CH/MH-53E helicopter, a shipboard compatible, heavy lift transport helicopter configured for both Marine and Navy missions. Marine missions include amphibious/heliborne assault providing lift and movement of cargo and troops, and heavy lift shore operational requirements including tactical recovery of downed or damaged aircraft and equipment. Navy missions include vertical onboard delivery (VOD) and airborne mine countermeasures (AMCM). Production of the MH-53, a multi-mission variation of the CH-53E, commenced in FY 1985. The MH-53E has significantly enhanced AMCM capability over the presently deployed RH-53D. AMCM associated improvements also enhance the aircraft's capability to perform utility and special missions by significantly increasing range and navigation capability. Fourteen aircraft are included in the FY 1989 budget request. The CH/MH-53 airframe is a multiyear procurement which began with the FY 1985 advance procurement for the FY 1986 lot and continues through FY 1989 for a savings of \$92.8 million.

V-22 (VTOL) OSPREY

(Dollars in Millions)		
FY 1988	FY 1989	
Qty	Qty	Amt
		335.3

Advance Procurement

The V-22 OSPREY is a Department of the Navy procurement of a tilt-rotor, vertical take-off and landing aircraft developed for Joint Service application. The V-22 program will provide an aircraft to meet the amphibious/vertical assault needs of the Marine Corps, the combat search and rescue (CSAR) needs of the Navy, and Army and Air Force requirements.

AH-1W (Helicopter) SEA CORRA

(Dollars in Millions)		
FY 1988	FY 1989	
Qty	Qty	Amt
34		221.5
		5.0
		.6

Procurement
Initial Spares

The AH-1W helicopter is an improved version of the Marine AH-1J, which incorporates an updated twin-pack engine (T700-GE-401) for increased performance, reliability and hot day performance. It has a TOW missile capability, a 20mm nose-mounted turret gun, a wing stores armament management system for selective release of externally carried weapons and a HELLFIRE missile system. The improved SEA CORRA is 58 feet in overall length and the rotor diameter is 48 feet. Maximum take-off weight is 14,000 pounds. The AH-1W mission is escort and protection of troop assault helicopters, landing zone preparation immediately prior to the arrival of assault helicopters, landing zone fire suppression during the assault phase, and fire support during ground escort operations. The FY 1988 funding of \$221.5 million procures 34 aircraft which completes aircraft procurement. No funds are requested in FY 1989.

SH-60B (Anti-Submarine Warfare Helicopter) SEAHAWK

(Dollars in Millions)		
FY 1988	FY 1989	
Qty	Qty	Amt
6	6	91.6
		21.0
		8.5

Procurement
Advance Procurement
Initial Spares

SH-60B (Anti-Submarine Warfare Helicopter) SEAHAWK (Cont'd)

The SH-60B SEAHAWK is the air sub-system of the Light Airborne Multi-Purpose System (LAMPS) MK III ship/air weapon system. LAMPS MK III is a computer integrated ship/helicopter system that increases the effectiveness of combatants for Anti-Submarine Warfare (ASW). The helicopter provides a remote platform for deployment of sonobuoys and torpedoes, processing of acoustic and magnetic anomaly detection sensor information, and an elevated platform for radar and electronic warfare support measures. The ship provides sensor processing, command and control, integration of LAMPS information gained from other sensors, the landing and traversing system, visual landing aids, and maintenance and support facilities for the aircraft. SH-60B secondary missions include anti-ship surveillance and targeting, search and rescue, vertical replenishment, medical evacuation and communications relay. The SH-60B carries a crew of three, approximately 2,000 lbs of mission avionics, and has provisions for sonobuoys and MK-46 torpedoes. The SH-60B has a mission gross take-off weight of about 20,000 lbs. \$91.6 million in FY 1989 is requested for the procurement of six helicopters to continue to build up fleet inventory levels.

SH-60F (Helicopter) CV ASW HELO

	(Dollars in Millions)	
	FY 1988	FY 1989
	Qty	Amt
Procurement	18	314.5
Advance Procurement		30.8
Initial Spares		40.3

The SH-60F CV ASW Helicopter provides carrier battle groups with inner zone ASW protection using manned helicopters with dipping sonar and an on-board sonobuoy processor. Second missions will include search and rescue, logistic support, medical evacuation and plane guard. The ultimate users are ASW helicopter squadrons and CV class ships. Funds totalling \$314.5 million in FY 1989 are requested to procure eighteen aircraft carrier inner zone anti-submarine warfare helicopters which are needed to modernize aging carrier assets and upgrade the carrier battle groups' ASW capability.

E-2C (Early Warning) HAWKEYE

	(Dollars in Millions)	
	FY 1988	FY 1989
	Qty	Amt
Procurement	6	307.2
Advance Procurement		30.9
Initial Spares		16.8

E-2C (Early Warning) HAWKEYE (Cont'd)

The E-2C is a carrier-based airborne early warning/command and control system designed for fleet air defense. Additionally, it provides the battle group commander with a strike control and surveillance capability. The E-2C has the same airframe as earlier models but is equipped with new avionics equipment, including a new radar antenna and passive detection system. This equipment provides an improved capability, including overland detection of air targets. A major feature of the system is the greatly enhanced reliability over previous models. Six E-2C aircraft at a cost of \$307.2 million are requested for procurement in FY 1989.

Advance Procurement

The FY 1989 budget includes \$700.7 million for advance procurement of material and effort for FY 1990 including the second increment for multiyear procurement associated with the AV-8B airframe. An itemization of the requirements follows:

(Dollars in millions) Aircraft Model	FY 1989		FY 1990	
	A/C Qty	A. P. in FY 88 \$20.0	A/C Qty	A. P. in FY 89
A-6 Upgrade	-		15	-
A-12				
EA-6B	9	22.7	9	18.3
AV-8B (MYP)	24	150.0	24	40.2
F-14 A/D	12	84.3	12	84.8
F/A-18	72	140.0	72	139.4
CH/MH-53 (MYP)	14	21.8	-	-
V-22	-	-	12	335.3
SH-60B	6	26.3	6	21.0
SH-60F	18	29.6	18	30.8
E-2C	6	30.0	6	30.9

The advance procurement listed is required to ensure timely delivery of the planned FY 1989 and FY 1990 aircraft. The amounts budgeted for Contractor Furnished Equipment (CFE) items, engines and some major Government Furnished Equipment (GFE) items are required for long leadtime effort and material for the prime contractor and their vendors. This includes items such as castings, forgings, landing gear and production engineering requirements. For most GFE, requirements are calculated for each item of equipment, considering the planned aircraft quantity, production leadtime, and prime contractor installation leadtime (i.e., the amount of time the item is needed at the factory prior to aircraft delivery). Certain equipment, primarily avionics items, are budgeted as advance procurement to ensure meeting planned aircraft production schedules. The AV-8B advance procurement funding supports multiyear procurement requirements through FY 1991. The CH/MH-53E advance procurement funding also includes multiyear requirements through FY 1989. The FY 1989 advance procurement request contains \$35.3 million for long lead requirements associated with procurement of the first 12 production V-22 aircraft in FY 1990 and a classified amount for long lead requirements for the first production of the A-12.

Budget Activity 2: Airlift Aircraft

	(In Thousands)
FY 1989 Amended Estimate	0
FY 1989 Change	\$- 7,781
FY 1989 Initial Estimate	\$ 7,781
FY 1988 Estimate	\$ 0
FY 1987 Actual	\$ 96,264

Purpose and Scope of Work

This budget activity provides for the procurement of fleet tactical support aircraft needed to fulfill the Navy's airlift support requirements.

Justification of Funds

The amended FY 1989 submission does not request any funds for this budget activity.

Budget Activity 3: Trainer Aircraft

	(In Thousands)
FY 1989 Amended Estimate	\$415,944
FY 1989 Change	\$+12,478
FY 1989 Initial Estimate	\$403,466
FY 1988 Estimate	\$368,110
FY 1987 Actual	\$ 65,116

Purpose and Scope of Work

The Naval Air Training Command needs aircraft specifically designed for aircrew training in order to provide the Navy, Marine Corps, and Coast Guard with well trained and highly skilled pilots, navigators, and aircrew. Aircraft procured under Budget Activity 3 are used to train students in basic and advanced flying techniques, navigation, instrument flying and numerous other skills required before the transition to high performance fleet aircraft.

Justification of Funds

Funds totalling \$415.9 million are requested in FY 1989 for procurement of 24 T-45TS aircraft and for advance procurement to continue the program in the ensuing year.

T-45TS (Trainer) QOSHAWK

	(Dollars in Millions)	
	FY 1988	FY 1989
	Qty	Qty
Procurement	12	24
Advance Procurement		
Spares		
	Amt	Amt
	338.7	375.1
	29.5	40.8
	24.1	13.5

The T45 TRAINING SYSTEM (T45TS) is comprised of aircraft, simulators, academics, a training integration system (TIS), and contractor logistic support. The T-45A QOSHAWK aircraft is a derivative of the British Aerospace HAWK aircraft. The HAWK is a tandem seat aircraft powered by a single F-405 (Rolls Royce Adour turbofan engine). The T-45A is being adapted to provide the capability for carrier catapult takeoffs and arrested landings. The simulator suite includes both Instrument Flight Trainers (IFT) and Operational Flight Trainers (OFT). Academics include textbook materials, classroom aids and a computer assisted instruction (CAI) system. The TIS utilizes existing hardware and software to provide planning, scheduling, and tracking of training events in order to achieve required training efficiency. In FY 1989, \$415.9 million is requested for 24 T-45A aircraft and advance procurement.

Budget Activity 4: Other Aircraft

	(In Thousands)
FY 1989 Amended Estimate	\$350,069
FY 1989 Change	\$-20,773
FY 1989 Initial Estimate	\$370,842
FY 1988 Estimate	\$401,918
FY 1987 Actual	\$317,247

Purpose and Scope of Work

Aircraft other than those associated with combat, airlift, and training missions are procured under Budget Activity 4.

Justification of Funds

The FY 1989 request of \$350.1 million is for seven E-6A aircraft, advance procurement for the FY 1990 E-6A program, and support funding for the HH-60H.

E-6A HERMES

	(Dollars in Millions)		
	FY 1988	FY 1989	
	Qty	Amt	Qty Amt
Procurement	3	165.2	7 334.5
Advance Procurement	-	137.7	- -
Initial Spares	-	20.1	- 29.1

The mission of the E-6A is to provide survivable communications connectivity between the National Command Authority and fleet ballistic missile submarines. The E-6A replaces the EC-130 TACAMO aircraft which is nearing service life limits. The E-6A will provide increased range and payload capabilities to meet present and future Minimum Emergency Essential Communications Network requirements.

HH-60H (Helicopter)

	(Dollars in Millions)		
	FY 1988	FY 1989	
	Qty	Amt	Qty Amt
Procurement	9	99.0	- 15.6
Advance Procurement	-	-	- -
Initial Spares	-	5.3	- 1.8

HH-60H (Helicopter) (Cont'd)

The HH-60H supports a dual primary mission for the Naval Reserve; Combat Search and Rescue (CSAR) and Special Warfare Support (SWS), with secondary missions which require traditional helicopter capabilities. The HH-60H will meet an urgent operational requirement to support the CSAR/SWS mission in worldwide contingency operations or during mobilization. With the introduction of a CSAR/SWS configured V-22 in the mid 1990's the HH-60H helicopter will be employed aboard small decks that cannot support the V-22 to expand mission capability and allow greater force employment. The FY 1989 request contains \$15.6 million to fund support requirements such as ground support equipment, pubs and technical data, and production line and field activity support.

Budget Activity 5: Modification of Aircraft

	(In Thousands)
FY 1989 Amended Estimate	\$ 915,993
FY 1989 Change	+\$248,976
FY 1989 Initial Estimate	\$ 667,017
FY 1988 Estimate	\$ 924,016
FY 1987 Actual	\$1,326,558

Purpose and Scope of Work

The Aircraft Modification program provides for improvements to operational capability, maintainability, reliability, and safety and/or extend the service life of Navy and Marine Corps aircraft.

Justification of Funds

In order to fulfill inventory requirements, it has become mandatory to operate many older aircraft beyond their originally programed service life and update their weapon systems so that they remain capable of continued effective operation in new threat environments. To accomplish these two objectives, the Navy pursues service life extension and weapons modernization programs. These conversions often involve complex engineering changes which require a major production effort and are usually accomplished at a contractor's facility, with aircraft inducted into an assembly line for the conversion/modernization programs. A substantial portion of the funds requested in the Amended FY 1989 budget are for modifications in this category.

The Amended FY 1989 budget request also includes funds for incorporation of other modifications intended to enhance the operational capabilities of in-service aircraft, their safety-of-flight, maintainability or reliability. Only essential modifications or changes which are necessary to satisfy the most urgent operational requirements are included in this budget request. The installation cost of all modification programs is budgeted in the Operations and Maintenance, Navy appropriation.

The following narrative summary highlights modification requirements by aircraft series and model.

A-3 Series Modification

\$.8 million is requested in FY 1989 to fund the Attitude Indicator/Standby Gyro upgrade which will combine aircraft attitude and navigation data on one display, reducing pilot visual scanning time and lowering the probability of error during critical instrument approaches.

A-4 Series Modification

\$2.3 million is requested in FY 1989 for A-4 aircraft. The only modifications planned are the TA-4 J52-P-6 Safety and Readiness Improvements to improve engine availability rates.

A-6 Series Modification

A total of \$178.3 million in FY 1989 is requested for various A-6 modifications. The principal modification is the A-6 Block Upgrade for which \$161.2 million is budgeted. This major effort will provide a new composite wing, AN/ALR-67 aircraft provisions, digital fuel quantity/vulnerability improvements, HARM missile launch capability, and other essential modifications. The AN/ALR-67 Radar Receiving Set, Countermeasures Warning and Control System equipment is budgeted in the Common ECM account. A detailed discussion of the improvements follows. The composite wing to be incorporated on the A-6E will provide 8,800 hours of wing life. Incorporation of the AN/ALR-67 will provide detection and direction finding (DF) coverage over the entire known radar/missile frequency bands for all types of emissions used for target tracking and missile control. Digital fuel quantity/vulnerability improvements offer increased fuel quantity indicator accuracy and will minimize potential fire hazards. HARM missile integration will provide an improved anti-radiation missile capability.

Funds are requested for the Stand-off Air-to-Ground Weapons modification which provides enhanced Walleye II pods for the A-6E (\$6.9 million). The J52-P-8 Safety and Readiness Improvement will provide a substantial increase in availability of the P-8 engine. \$7.2 million is requested for this needed improvement.

Finally, \$3.0 million is requested for continuation of the Pylon Modification Program which will correct a safety of flight problem by updating wiring in A-6E wing pylons.

EA-6 Series Modification

\$36.8 million is requested for EA-6 modifications. The most significant modification planned is the ALQ-99 Pods program (\$26.8 million). These funds will be used to procure jammer pod components peculiar to the Extended Capability (EXCAP) to Improved Capability (ICAP) II update.

EA-6 Series Modification (Cont'd)

Other modifications for the EA-6 include the Structural Improvement modification (\$3.3 million) which will correct structural deficiencies identified during fatigue testing and the J52-P-408 Safety and Readiness Improvement (\$6.7 million), which will vastly improve the availability of the engine.

AV-8 Series Modification

All of the \$.9 million is requested to continue the Safety, Reliability, and Maintainability program which corrects deficiencies identified during operational testing.

F-14 Series Modification

\$33.2 million is requested for F-14 modification programs. Various deficiencies identified during aircraft fatigue tests will be corrected in the Structural Improvements Program. \$2.9 million is requested to continue this program. \$13.9 million is requested for the ASW-27C LINK-4A program. This operational capability enhancement, modification will provide anti-jam protection for the LINK-4A, the digital link used for target data exchange between E-2 and F-14A aircraft. Another communications enhancement is the AN/ARC-182 Radio (\$9.8 million) scheduled for installation in those F-14 aircraft which were not modified under the Block Upgrade program in prior years.

Two other ongoing modifications budgeted within the F-14 are the MXU-611 Jettison Release program (\$2.0 million) and the FLAP/SLAT System improvement (\$3.0 million). The MXU Jettison release modification will minimize the risk of cartridge blow out due to inadvertent firing of the MXU-611. The FLAP/SLAT System improvement will correct several deficiencies in the maneuvering FLAP/SLAT system which is experiencing unacceptably high failure rates.

Finally, \$1.6 million is budgeted for the Television Camera System Track While Scan/Gun Scoring System improvement which will enable the aircrew to visually identify targets while simultaneously maintaining up-to-date radar track files.

F-5 Series Modification

Funding of \$.1 million is requested for the only F-5 series modification, the Structural Fatigue/Avionics Improvement program. This program will replace or correct known fatigue-sensitive structural components and incorporate avionics improvements such as the Structural Monitoring System and the AN/ALQ-3 System.

ES-3 Series Modification

A total of \$155.3 million in FY 1989 is requested for the S-3A to ES-3A modification (Battle Group Passive Horizon Extension System (BGPHEs) Airborne Component). This modification will allow for commonality between the ES-3A Mission Avionics Suite (MAS) and the EP-3 CILOP. The ES-3 will be a dedicated replacement for the EA-3B aircraft.

OV-10 Series Modification

The principal OV-10 modification is the Block Upgrade I (A to D) budgeted at \$20.7 million. This upgrade will provide OV-10D configured aircraft which will have a Night Observation System capability to locate enemy troops, artillery positions, and armored units during periods of low visibility and at night. Also, \$12.1 million is requested to provide for a service life extension program.

F-18 Series Modification

The only funds requested in this budget are \$.1 million to correct discrepancies identified during testing and by so doing update delivered F-18 aircraft with components in the present configuration of in-production aircraft.

H-46 Series Modification

\$21.1 million is requested for two H-46 modifications. The major program is the H-46 Block Upgrade. This program will provide additional fuel capacity to extend flight time, add a navigation capability, and improve aircraft flotation for emergency water landings. \$19.9 million is requested for the block upgrade program.

Also planned is the procurement of AN/AAR-47 Detection System provisions designed to protect the H-46 against surface-to-air and air-to-air missiles (\$1.2 million). The AN/AAR-47 Detection System hardware is budgeted in the Common FCM account.

H-53 Series Modification

A total of \$14.4 million is requested for H-53 modifications. Funds are requested to continue the CH-53E Block Upgrade which started in FY 1988. This modification will maintain a common CH-53E configuration while increasing safety, survivability, and maintainability by the addition of machine gun installations, inflight hydraulic fluid replenishment capability, improved chip detectors, storm scopes to avoid turbulent weather, and cabin egress lighting to enhance safety (\$10.1 million).

H-53 Series Modification (Cont'd)

Funds are requested for the AN/AAR-47 Detection System provisions (\$.8 million). This improvement will provide warning of attack by surface-to-air and air-to-air missiles. The AN/AAR-47 Detection System hardware is budgeted in the Common ECM account.

Also planned is the continuation of the AN/ALQ-157 IR Jammer upgrade which provides protection against IR missiles. \$.6 million is requested for this program. \$.4 million is requested for the Crashworthy Fuel System improvement which is designed to contain fuel spillage during and following crash impact, thus improving crew safety. The AN/ARC-182 Radio will provide state-of-the-art secure voice communication with other fleet aircraft. \$.5 million is requested in FY 1989 for this radio upgrade.

The Night Vision Goggles program will enhance low level night operations by improving the ability of the crew to see the terrain during low visibility. \$1.3 million is requested to procure cockpit lighting changes in FY 1989.

The Selectable Strobe Light modification will improve aircraft visibility thus reducing the likelihood of mid-air collision (\$.6 million). Finally, \$.1 million is requested to continue the Aircraft Survivability Improvement. This program replaces flight control system rods with new composite material which better withstands ballistic impact, thus reducing the probability of aircraft loss.

SH-60B Series Modification

\$.5 million is requested for two modifications for the SH-60B. Funds in the amount of \$.4 million are requested for completion of the Filterline Cable program which corrects identified deficiencies for operation of the aircraft in the expected fleet Electromagnetic Vulnerability environment. Aircraft will be reworked according to production lot configuration. \$.1 million is requested for continuation of the Helicopter Emergency Egress Lighting (HEEL) improvement which increases the chances of successful aircrew emergency evacuation.

VH-60 Series Modification

The only modification for which funding is requested in FY 1989 is the NAVSTAR Global Positioning System (\$1.2 million). This system will provide the VH-60 with three dimensional position, velocity, and time information and will interface with communication and navigation equipment.

H-1 Series Modification

A total of \$29.0 million is requested for modifications to the H-1 series aircraft. The major modification planned is the AH-1 Block Upgrade. This change will provide improved power and armament capability to meet operational requirements in high altitude, hot temperature environments. Major improvements include incorporation of the T700 engine, the Hellfire Missile System, and an improved crashworthy fuel system. \$23.0 million is requested for this vital upgrade program in FY 1989.

Funds are requested to continue Night Vision capability improvements through utilization of enhanced cockpit lighting in conjunction with night vision goggles. \$.8 million is requested for the UH-1N, while \$.5 million is requested for the AH-1J/T.

Another improvement planned for FY 1989 is the AH-1 Navigation System improvement utilizing the AN/APN-217 Doppler Navigation System and related cockpit instrumentation. This modification will enhance nighttime low level operational capabilities (\$2.8 million).

Finally, addition of the AN/AAR-47 Detection System will increase aircraft survivability by providing early detection of incoming enemy missiles permitting time for evasive maneuvering. \$.8 million is requested to provision UH-1N, with an additional \$1.1 million requested for provisioning of the AH-1T/W aircraft. AN/AAR-47 Detection System hardware is budgeted in the Common ECM account.

H-2 Series Modification

Two modification programs are budgeted for the H-2 series aircraft in the amount of \$5.7 million. The H-2 Block Upgrade modification will provide essential mission equipment to enable the LAMPS MK I Force to meet the projected threat. Planned improvements include the incorporation of T700 engines, replacement of a 1950's vintage sonobuoy recorder with an acoustic processor and display, add the standard 99 channel sonobuoy receiver, incorporate a secure burst data transfer capability, and add a limited 1553 data bus to integrate mission equipment. \$3.7 million is requested in FY 1989 to continue this essential mission capability improvement.

In addition, \$2.0 million is requested for completion of the Torpedo Depth Control improvement. This change will permit the aircrew to select torpedo operating modes and initial search depths of the MK 46 ASW Torpedo while in flight, thus increasing the probability of a successful attack.

H-3 Series Modification

\$31.6 million is requested to fund the SH-3H/G/D Service Life Extension Program. This program is designed to extend the service life of the SH-3 past the year 2000 to provide essential CV helo and station SAR mission capability. Improvements will include extensive rework/replacement of dynamic components, degraded or deteriorated structural components, out-moded flight controls, unreliable emergency floatation gear, and extensive rewiring of the electrical system.

EP-3 Series Modification

\$21.9 million in FY 1989 is requested to complete the EP-3 Conversion in Lieu of Procurement (CILOP) program. The intent of this program is to extend the airframe service life, standardize mission avionics configuration, and reduce/stabilize aircraft weight and balance.

An additional \$4.6 million is requested to initiate the EP-3 Sensor Improvement modification. This Congressionally directed program will provide the EP-3 with improved capability to deal with the increasingly complex and dense threat signal environment by improving ESM/Special system frequency coverage, applying state-of-the-art signal exploitation/processing/display techniques, expand direction finding coverage and accuracy, and increase intercept system sensitivity.

P-3 Series Modification

Included in the Amended FY 1989 budget request is \$131.9 million for P-3 modifications. Of this amount, \$1.7 million is associated with HARPOON related modifications. Provisions for the HARPOON Airborne Command and Launch System include pylon modifications, wing wiring, inter-connecting cables and data processor, logic unit control panel, and other equipment.

Continuation of the HF Simultaneous Operations (SIMOPS) program is requested with \$6.6 million programmed in FY 1989. Incorporation of the AN/ARC-191 transceiver and modification to the aircraft communication switching matrix will permit independent operation of the two HF radios currently incorporated in P-3C aircraft. The AN/APS-137 radar program continues in FY 1989 at a cost of \$4.4 million. This program provides improved periscope detection and long range classification for maritime surveillance. Another continuing program is the classified Special Project Aircraft effort budgeted at \$7.7 million in FY 1989.

P-3 Series Modification (Cont'd)

To improve the P-3C aircraft's ability to detect and counter surface/subsurface-to-air missiles, \$5.1 million is requested for the Survivability and Vulnerability program. By incorporating the AN/AAR-47 Detection System and the AN/ALE-39 infra-red flare and chaff dispenser, the P-3C will have a self defense capability against infra-red and radar threats. The system will automatically dispense flares, chaff or both upon missile detection. Retrofit of AN/ARC-182 and AN/ARC-187 radios into P-3C aircraft began in FY 1986 and continues in FY 1989. Both of these radio modifications are being funded under the UHF/VHF Communication Update program with \$12.0 million being requested in FY 1989. Incorporation of AN/AGA-7 improvement is greatly needed to meet the submarine threat of the 1990's by enhancing detection capabilities. \$10.2 million is requested for this program.

The P-3 Block Upgrade (\$77.6 million) improves the acoustic processing system utilizing the Navy Standard AN/UYS-1, the ARR-78 Receiver, and USQ-78 Display and Control. Associated upgrades are required to interface with the P-3 main computer systems. Also requested in FY 1989 is \$1.1 million for Omnibus RAM upgrades and \$.3 million for RP-3 modifications. In addition \$5.2 million is requested for the ALR-66 Electronic Sensor Monitoring (ESM) system. The ALR-66 will provide automatic indication of the bearing, range and classification of each threat radar transmission.

S-3 Series Modification

Modification to the S-3 series aircraft requires \$135.6 million in FY 1989. The principal modification is the S-3 Block Upgrade for which \$126.7 million is budgeted. The purpose of this program is to improve Anti-Submarine Warfare (ASW) capabilities of the acoustic, Electronic Sensor Monitor (ESM) and radar subsystems, add Electronic Countermeasures (ECM) and Harpoon missile capability and increase useful service life through a redesigned Communication Control group.

Continuation of the Aerial Refueling Store (ARS) program is also requested. This program provides aircraft modifications to permit carriage and operation of an ARS power source with required wiring and structural strengthening. Procurement of this system requires \$3.6 million in FY 1989. In addition, \$3.6 million is required for continuation of the MK-46 Presetter Interface program which will modify the bomb bay decoder. Finally, \$1.7 million is requested in FY 1989 for incorporation of the MK-50 torpedo capability.

E-2 Series Modification

A total of \$20.2 million in FY 1989 is requested to modify E-2 aircraft. \$1.3 million is requested to continue the Block Upgrade I program. This major improvement program includes a 10 KVA Emergency Generator Set, microwave refractometer, various safety mods, pylon fixed fairings, a passive detection system, attitude gyro, vertical control surface replacement, TRAC-A Radar Antenna, cockpit EMI reduction, computer recorder reproducer, SPN-41 ILS, and Standard Central Air Data Computer. In addition, \$18.9 million is requested for continuation of the Structural Enhancements modification. This program extends the operational life of the aircraft by replacing the wing center section and modifying other structural components.

Trainer Aircraft Modification

\$0.5 million in FY 1989 is requested for various modifications to trainer aircraft. The Trainer Aircraft line includes modifications budgeted for the T-2, TC-4C, T-34, T-38, T-44, and TH-57 series aircraft. Within the account, \$0.5 million is requested for the T-34 Landing Gear Actuation System modification to reduce landing gear linkage stress.

EC-130 Series Modification

In FY 1989, \$8.7 million is requested for the Consolidated Very Low Frequency subsystem which is designed to replace current transmit and receive terminals. This will allow dissemination of Emergency Action Messages as part of the Minimum Essential Communication Network (MEECN).

In addition, the Air Force Satellite Communication (AFSATOOM/MILSTAR) Terminal Update will provide replacement modems for the AFSATOOM terminals (\$4.0 million).

C/KC-130 Series Modification

The only funds requested for this program are \$2.1 million in FY 1989 for the Avionics System Improvement Program (Phase III). Among the modifications included are the incorporation or modification of the solid state propeller synchronization system, compass system, HF secure voice capability, Combined Altitude Radar Altimeter (CARA), engine instruments, flight detector, addition of the safety-related Ground Proximity Warning System, and many other avionics equipments. Together, these changes will substantially increase safety, reliability and maintainability.

FEWMSG Series Modification

The ability to accurately simulate the known and postulated EW characteristics and tactics of different threats for fleet training is a primary mission element of the Fleet Electronic Warfare Support Group (FEWSG) and its assigned aircraft and equipments. In support of this program, \$1.8 million in FY 1989 is requested for FEWSG modifications. To provide an ECM device that simulates threat defense ECM systems and several types of threat anti-ship missile seeker systems, \$1.8 million is requested for the AN/ALQ-167 and AN/AST-4 Pods.

Cargo and Transport Aircraft Modification

A total of \$1.7 million is requested in FY 1989 for the Cargo and Transport Modification line item which includes modifications budgeted for the C-131, C-9, UC-12, and CT-39 aircraft.

The major modification planned in this category is the continuation of the C-9 Service Standardization program. This modification provides standard TACAN, UHF/VHF radio, cargo door/floor changes, and other minor modifications to standardize the C-9 fleet. \$0.8 million in FY 1989 is requested for this program.

The C-131 modernization program will provide the Navy's two C-131 aircraft, manufactured in 1954, with essential avionics and airframe updates in compliance with FAA requirements. \$0.1 million in FY 1989 is budgeted for this modification.

The C-9 HF Communication Capability and HF Update modification will provide long range two way voice communication, thus providing increased safety during pathfinder missions for the C-9. \$0.6 million in FY 1989 is requested.

The FAA Configuration Update enables the Navy to maintain configuration compatible with FAA certified models of aircraft. \$0.1 million in FY 1989 is requested to enable the implementation of FAA service bulletins for the C-9, UC-12, and CT-39 aircraft.

Finally, the CT-39 Service Life Extension Program (SLEP) will extend the useful service life from 15,000 missions to 30,000 missions per aircraft (\$0.1 million in FY 1989).

Various Modifications

\$1.0 million in FY 1989 is requested in the Various Modification line to fund two modifications. The first is the A-7 Stencel Ejection Seat Parachute 4 Line Release which will allow ejected crewmen to selectively glide/steer their parachutes to avoid obstacles and select a landing site. (\$0.2 million in FY 1989).

The second program is the NAVSTAR Global Positioning System modification. Funding is for the procurement of user kits to be incorporated in the P-3, SH-60B, E-2C, VH-60, H-46, E-6A, H-2, and A-6 (\$.8 million in FY 1989). Funding for the airframe provision kits is budgeted in the individual aircraft lines.

Power Plant Changes

This program funds procurement of a large number of primarily small dollar engine modifications. For this purpose, \$2.0 million in FY 1989 is requested.

Miscellaneous Flight Safety and Operational Necessity Changes

The FY 1989 budget request includes \$.1 million for safety related modifications. This program provides for the procurement of kits to correct flight safety and operational deficiencies which are revealed during fleet operations.

Common ECM Equipment

A total of \$35.3 million in FY 1989 is requested for Common ECM equipment. The AN/ALQ-162 countermeasures set will provide complementary CW jamming to the operational AN/ALQ-126B pulse jammer for the A-4M, A-7E, and AV-8B aircraft. The \$12.2 million requested is to complete support requirements.

The AN/AAR-47 Detection System provides warning of approaching missiles by radiation detection and initiates flare ejection. Aircraft supported by this system are the CH-53, CH-46, OV-10, AH-1, and UH-1 (\$23.1 million in FY 1989).

Common Avionics Changes

\$.5 million in FY 1989 is requested for one avionics change, the Digital Air Data Converter. This equipment will provide a standardized air data computer for a number of Navy aircraft, and will increase Mean Flight Hour Before Failure (MFHBF) for air data computers from 106 hours to 400 hours, thus improving aircraft readiness rates.

Budget Activity 6: Aircraft Spares and Repair Parts

(\$ in Thousands)

FY 1989 Amended Estimate	\$ 1,162,606
FY 1989 Change	\$ - 108,351
FY 1989 Initial Estimate	\$1,270,957
FY 1988 Estimate	\$1,436,913
FY 1987 Actual	\$1,603,090

Purpose and Scope of Work

Budget Activity 6 funds the procurement of the spare equipment and repair parts necessary to support Navy and Marine Corps aircraft procurement and operating programs. The budgeted funds provide for: (1) initial outfitting and pipeline quantities of repairable spares and repair parts for new and modified aircraft; and (2) buyout of depot level repairable spare parts from the Navy Stock Fund (NSF) by means of the aviation outfitting account in the year of delivery, and a small number of non-stock funded replenishment spares.

Justification of Funds

On 1 April 1985, the Navy expanded its test of financing the procurement and repair of non-aviation Depot Level Repairable (DLR) components in the Navy Stock Fund to aviation DLRs. Prior to this time, DLRs were funded in either Weapons Procurement, Navy (WPN), Other Procurement, Navy (OPN), or Aircraft Procurement, Navy (APN), while repair was funded in the Operation and Maintenance, Navy (O&M,N) appropriation. In the procurement accounts, release of these items from the supply system was on a "free issue" basis. Under stockfunding, a "buyer/seller" relationship is established and users of DLRs pay for what they requisition. The purpose of the test is to determine if readiness can be improved via better material support and if economies can be achieved due to the "buyer/seller" relationship. The expanded test ends on 31 March 1988. Results have been extremely positive with readiness indicators showing strong improvement through FY 1987.

The following table depicts the funding profile for the spares account.

	FY 1987	FY 1988	FY 1989
(\$ in Millions)			
Initial Spares and Repair Parts	\$ 460.1	\$ 503.5	\$ 410.0
Replenishment Spares and Repair Parts	1,143.0	933.4	752.6
Total Aircraft Spares and Repair Parts	\$1,603.1	\$1,436.9	\$1,162.6

INITIAL SPARES:

The initial spares requirements reflect the number, type and deployment of aircraft being procured and entering the operating program.

The items being procured under the initial spares category include engines, spares for equipments and parts which have been recently introduced and for which there is not sufficient leadtime for the Navy Stock Fund to field. Funding requirements for engines, major avionics, and other equipments which qualify as initial spares are calculated on an item-by-item basis based on usage data, failure rates, and engineering estimates to predict usage for new items. Requirements for other initial spares and spare parts are determined on a statistical basis, using the same methodology used in calculating major spare equipment requirements.

The following table shows FY 1989 Initial Spares and Repair Parts support requirements by aircraft model:

		FY 1989				(\$ in Millions)		Aircraft Outfitting Account (AOA)		Total
Aircraft Model	Quantity	Spare Engines	Contractor Spares	PSE Spares	Initial	Spares	Initial	Spares	Initial	Spares
A-6 Upgrade	-	-	-	-	6.4	-	6.4	6.4	6.4	6.4
EA-6B	9	11.2	.5	.8	-	.8	6.4	19.0	19.0	19.0
AV-8B	24	24.7	20.7	.3	-	.3	3.3	49.0	49.0	49.0
F-14A+/D	12	13.3	16.2	.8	-	-	-	30.2	30.2	30.2
F/A-18	72	30.0	26.9	1.1	14.6	1.1	14.6	72.6	72.6	72.6
CH/MH-53E	14	2.1	9.4	-	1.1	-	1.1	12.6	12.6	12.6
AH-1W	-	-	-	-	.6	-	.6	.6	.6	.6
SH-60B	6	1.9	-	.1	6.5	.1	6.5	8.5	8.5	8.5
SH-60F	18	2.2	29.7	-	3.7	-	3.7	35.6	35.6	35.6
HH-60	-	.5	.5	-	1.8	-	1.8	2.7	2.7	2.7
P-3C	-	-	-	1.3	.6	1.3	.6	1.9	1.9	1.9
E-2C	6	7.8	8.1	-	.9	-	.9	16.8	16.8	16.8
C-2A	-	-	-	-	.3	-	.3	.3	.3	.3
E-6A	7	8.4	20.7	-	-	-	-	29.1	29.1	29.1
T-45	24	5.3	8.2	-	-	-	-	13.5	13.5	13.5
Airborne Weapon Spares	-	-	3.8	-	-	-	-	3.8	3.8	3.8
Training Device Spares	-	-	18.7	-	-	-	-	18.7	18.7	18.7
CGSE Repair Parts ^{1/}	-	-	-	1.2	-	1.2	-	1.2	1.2	1.2
ATE/SE Parts	-	-	-	13.2	-	13.2	-	13.2	13.2	13.2
Modification Spares	-	-	-	-	-	-	-	-	-	-
TOTAL		107.3	163.4	18.9	46.1	-	46.1	74.3	74.3	410.0

Totals may not add due to rounding.

^{1/} Supports equipment procured in B.A. 7.

Initial spares and repair parts are categorized as follows:

- (1) Government Furnished Spare Aircraft Engines - (FY 1989 - \$107.3 million). Spare aircraft engine requirements are calculated on an actuarial basis to support the aircraft operating program with a confidence level of 80% to 90% that a spare engine will be on site and ready for issue when required by combat aircraft. Requirements are determined by developing a flying hour program for each type/model aircraft and applying against it engine repair and removal rates to determine total engine procurements. On hand and on order assets are deducted from this gross requirement to arrive at a net procurement requirement. Requirements are thus established for initial outfitting of shore sites and carriers and to fill maintenance repair/overhaul pipelines.
- (2) Contractor Spares Support - (FY 1989 - \$163.4 million)

Contractor furnished spares and repair parts are provided for support of new, sophisticated weapons systems or subsystems during their development and fleet introductory phases until the Material Support Date is reached, at which time the Navy supply system assumes responsibility for providing all spares and repair parts. Contractor support is designed to preclude procurement of unnecessary or unstable spare parts before usage data is available or aircraft equipment design is frozen. Requirements are calculated by comparing the new weapon system with historical data for a similar/same aircraft and utilizing the Weapon System Planning Document which provides the site activation schedule.

- (3) Peculiar Support Equipment (PSE) - (FY 1989 - \$18.9 million)

The funding requested here provides for repair parts essential to the support (readiness) of PSE end items required for the ground testing, servicing, handling and maintenance of specific weapon systems and their sub-systems. These PSE end items require complete integrated logistic support, including repair parts, concurrent with delivery in order to adequately support the related weapon systems.

PSE spares funding provides for contractor augmented support. Requirements are determined by the initial quantity of PSE end items procured, the complexity/cost of the end items, the number of sites to be supported, the proximity/inter-support relationship of shore-based sites, and the period of time between equipment introduction and material support date.

- (4) Aviation Outfitting Account Initial - (FY 1989 - \$46.1 million)

The funding requested in this section procures spares from the Navy Stock Fund to field new weapons using peacetime operating rates.

(5) Modification Spares - (FY 1989 - \$74.3 million)

The investment program also includes procurement of initial repairable spares and repair parts to support modification programs financed under APN Budget Activity 5. Requirements include new procurement and/or the modification of spares and repair parts already in the inventory. Requirements are based on the corresponding elements being procured for the aircraft modification program.

REPLENISHMENT SPARES:

Total funding requested for all replenishment spares programs is \$752.6 million in FY 1989. The replenishment spares element of the budget is made up of: (a) the aviation outfitting support account which provides funding to procure from the Navy Stock Fund afloat and shore activity outfittings required to support fleet operating aircraft, (b) replenishment spares procured at the Naval Air Systems Command headquarters to support executive mission helicopters, interservice support requirements and miscellaneous aircraft systems, and (c) a small number of non-stock funded replenishment spares.

The following table shows the FY 1988 and FY 1989 replenishment spares funding levels by category:

	FY 1988	FY 1989
	\$	\$
Inventory Control Point Support	6.6	12.8
Aviation Outfitting Support	902.5	717.9
Interservice Support	2.7	2.0
Executive Mission Helicopters	17.9	12.9
F-5/T-38 Aircraft	1.5	3.0
Miscellaneous Headquarters	2.2	4.0
TOTAL	\$ 933.4	\$ 752.6

The replenishment spares are categorized as follows:

(1) Inventory Control Point (ICP) Support - (FY 1989 - \$12.8 million)

Spare repairable components are managed by the Aviation Supply Office and the Ships Parts Control Center, which have been assigned program support responsibility for specific aircraft/weapon systems. Spares requirements are calculated by an individual line item stratification technique. The Uniform Inventory Control Point stratification requirements are computed utilizing DOD logistics guidance, Navy program planning data, and technical, procurement, and inventory data maintained by the ICP. During stratification, these components are evaluated in terms of inventory on hand and on order, demand experience, projected demand, and outfitting requirements.

(2) Aviation Outfitting Support - (FY 1989 - \$717.9 million)

This account funds the procurement for all afloat and shore activity outfittings required to support fleet operating aircraft. These requirements are procured by the Navy Stock Fund in advance and as subsequently "bought out" by this account. This approach has provided: a) improve material availability, b) improve asset management, and c) provided essential financial flexibility. The benefits are an improved logistics support posture and a corresponding improvement in aircraft readiness.

(3) Interservice Support - (FY 1989 - \$2.0 million)

Funds are required to reimburse the Army and Air Force for repairable material used during both in house (organic) and service administered commercial overhaul work of Navy aircraft engines, airframes and other repairable components. Material requirements are calculated by the Army and Air Force for the Navy's projected overhaul/rework program and are validated through negotiation between the Naval Air Logistics Center and Army/Air Force representatives.

(4) Executive Mission Helicopters - (FY 1989 - \$12.9 million)

Replenishment spares support requirements for the VH-3D, VH-1N and VH-60A Executive Mission aircraft. The Executive mission provides a transportation and evacuation capability for the Chief Executive, Heads of State and other visiting dignitaries. Eleven VH-3D and six VH-1N aircraft operate from one primary site and two auxiliary sites. Nine VH-60A aircraft are being procured in FY 1986 to replace the VH-1N aircraft at the end of FY 1989. These helicopters operate for extended periods of time from numerous other locations necessitating selected item pickup kits of replenishment spares. Material support requirements are calculated based on inputs from the operating squadron, the aircraft contractor and those peculiar requirements set forth by the Executive Branch. Executive Mission helicopters must have 100% spares support for repairable components. These components are procured so that a spare will be on hand when the component reaches half its projected service life.

(5) F-5/T-38 Aircraft - (FY 1989 - \$3.0 million)

Funds are required for the procurement of repairable material support from the Air Force for eleven F-5E/F and six T-38A aircraft operating at four sites. Material requirements are developed by the weapon system manager and NAVAIR based on past spares usage, the projected flying hour program and the number of sites operating the aircraft.

(6) Miscellaneous NAVAIR Headquarters Support - (FY 1989 - \$4.0 million)

This includes material support requirements for the Fleet Electronic Warfare Support Group (FEWSG), Project Beartrap, Special Project Mission Avionics and VH-3A aircraft support. Spares requirements for FEWSG, Project Beartrap and Special Project Mission Avionics are developed by the Naval Avionics Center in conjunction with the operational activities, based on past usage and anticipated system changes. VH-3A spares requirements are developed by the fleet operational squadron and NAVAIR, using historical data to project future material requirements.

COMBAT AIRCRAFT 7: Aircraft Support Equipment and Facilities

	(In Thousands)
FY 1989 Amended Estimate	\$ 515,455
FY 1989 Change	\$ -92,150
FY 1989 Initial Estimate	\$ 607,605
FY 1988 Estimate	\$ 559,168
FY 1987 Actual	\$ 541,493

Purpose and Scope of Work

The Amended FY 1989 budget request of \$515.5 million provides continuing vital effort in the five following categories which support aircraft procurement programs:

- (1) Common Ground Equipment, which provides funds for Automatic Test Equipment (ATE), Avionics Support Equipment (ASE), various aircraft systems trainers and training aids, and other aircraft ground support equipment including Rapid Deployment Force requirements and Mobile Maintenance Facilities for Marine expeditionary forces.
- (2) Aircraft Industrial Facilities, which provides calibration equipment for Navy standards and calibration laboratories. It also provides for capital improvements, modernization, and maintenance of government-owned, but contractor-operated, aircraft-producing industrial plants.
- (3) War Consumables, which provides funds for auxiliary fuel tanks, air refueling stores, pylons, and ejector racks and for the modification of these equipments. The new procurement items are of a consumable nature and are related primarily to the number of sorties flown by combat and training aircraft.
- (4) Other Production Charges, which provides funds for miscellaneous production support and testing services, aircraft cameras, various equipment for United States Coast Guard aircraft, and aircraft pods and instrumentation packages supporting tactical aircrew combat training and mobile sea range systems.
- (5) Special Support Equipment, which provides funds in support of a classified program.

Justification of Funds

Funding requirements for FY 1988 and FY 1989 are outlined in the following table:

	(Dollars in Millions)	
	FY 1988	FY 1989
	Funding	Funding
Common Ground Equipment		
Aircraft Industrial Facilities	24.4	27.6
War Consumables	34.9	12.3
Other Production Charges	27.7	40.6
Special Support Equipment	86.1	36.4
Total B.A. 7	\$559.2	\$515.5

Common Ground Equipment - FY 1989 \$398.6 million

Funding for the various segments of this program is depicted below and described in subsequent paragraphs:

	FY 1988	FY 1989
	Funding	Funding
	\$	\$
(a) Training Equipment		
(b) Automatic Test Equipment (ATE)	123.0	84.2
(c) Aircraft Common Support Equipment	59.3	81.6
(d) Mobile Maintenance Facilities	14.1	16.3
(e) Inventory Control Point (ICP) Managed SE	61.6	65.4
(f) Headquarters Managed PSE	12.9	23.3
(g) Gas Turbine Compressor Replacement	15.3	3.9
(h) Avionics Support Equipment	25.6	38.5
(i) Rapid Deployment Force/Maritime Prepositioned Ships	6.6	6.4
(j) Aircraft Salvage Equipment	8.3	8.8
Total Common Ground Equipment	\$386.1	\$398.6

Training Equipment

The Amended FY 1989 budget request is \$70.2 million. The Training Equipment sub-line item provides funds for acquisition of trainers, training equipment, training parts, GFE/GSE for training purposes, and modifications/changes relating to the above acquisitions. The procurements funded within the Training Equipment sub-line item are limited to: (1) training devices and equipment and related modifications for

Training Equipment (Cont'd)

generalized training programs which provide skills common to more than one weapon system, (2) trainers for out-of-production aircraft, and (3) GFE in support of courses at the Navy Formal Schools. Training on out-of-production aircraft is dependent upon these funds for all acquisitions, specific trainer-peculiar changes, modification/modernization, user-generated changes and replacements. The Training Equipment sub-line item is broken into two major categories, General Training Equipment and Modification/Modernization of Trainers. The following tables display funding profiles within the Training Equipment sub-line item:

General Training Equipment

	(In Thousands)	
	FY 1988	FY 1989
Minor Training Aids and Devices	\$ 80	\$ 90
Air Traffic Control Trainers	11,187	2,531
"A" School Trainers	12,947	15,365
Air Combat Maneuvering Simulator	250	280
Physiological Trainers	668	0
Landing Signal Officer Trnr	2,187	0
Total General Training Equipment	\$27,319	\$18,266

Modification/Modernization of trainers requirements, including GFE for out-of-production weapon systems

Program	(In Thousands)	
	FY 1988 \$	FY 1989 \$
A-3	2,150	0
A-4	700	0
A-6E	0	4,457
A-7	781	1,603
C-2A	2,750	790
E/K/C-130	6,637	4,200
R/RF-4	0	230
F-14A	0	8,330
GFE for Formal Schools	2,100	1,593
H-1	404	206
H-2	2,840	7,131
H-3	600	5,847
H-46	50	184
CH/RH-53	825	440
P-3A/B	585	0
S-3A	7,382	10,014
T-2	38	45
T-34	0	100
T-44	224	1,037
TA-4J	3,500	5,500
TH-57	522	242
Total Modification/Modernization of Trainers	\$32,088	\$51,949

ATE (Automatic Test Equipment)

The Amended FY 1989 budget request includes \$84.2 million for ATE. The ATE segment of the Common Ground Equipment budget line item was established to broaden this category of support equipment acquisition formerly limited to VAST (Versatile Avionics Shop Test). The ATE account funds the procurement of the Tailored MINI-VAST, as well as a family of module testers including the Hybrid Tester, the Digital Tester, the Electro-Optics System Test Set (EOSTS), the Radar Communications Tester (RADOOM) and the Navigation Set Test System to support Inertial Navigation Systems in the fleet, and two types of Electronic Warfare Test Sets and the New EW Test Set (NEWTS).

The new five-rack Tailored MINI-VAST will support the avionics systems of the SH-60B, F-14A, F-14D, S-3A, V-22, and CV Helo. Tailored Mini-Vast program objectives are: (1) to provide support as the principal avionics test equipment for TF-18, A-18, V-22, F-14D, S-3B, CV Helo and SH-60 weapons systems; (2) to maximize commonality with the VAST system; (3) to preclude the development and introduction of new special purpose test equipment, and provide a more cost effective, logistically common and technically superior standard testing system; (4) to reduce the number of avionics technicians required in the avionics shop; and (5) to reduce shipboard avionics support spare requirements.

Acquisition of the NAVAIR standard digital module tester, the Computerized Automated Tester (CAT), is planned to continue consistent with contractor test program development and Fleet support requirements. This tester satisfies the stringent testing requirements of digital shop replaceable assemblies (SRAs) from a broad range of avionic systems which require dynamic testing. The CAT is presently deployed at over thirty operational sites including 12 aircraft carriers. Additional units are required to outfit F-14, E-2, A-6, and A-7 fleet operating sites.

The Hybrid Test Systems (HTS) is required to conduct the complex testing requirements of hybrid (combined analog and digital) and pure analog modules. Acquisition is planned to continue for support of F/A-18, AV-8B and SH-60 sites and to replace obsolete, manual testers in a planned off-load program for A-6, EA-6, E-2, and F-14 modules. This tester complements the CAT by providing broad general purpose support for SRAs.

The Navigation Set Test Station was originally developed to provide support for the AN/ASN-92 Carrier Air Inertial Navigation Set (CAINS) and to replace the 1960-era Peculiar Support Equipment (PSE) that had been acquired to support earlier inertial navigation systems. Design flexibility and growth potential have allowed expansion of the application of this versatile item of ATE to the AN/ASN-130 system. Continued procurement is required to optimize support of the AN/ASN-92, AN/ASN-130 and future advanced INS systems such as the Laser Inertial Navigation Set and AN/ASN-139 system.

The New Electronic Warfare Test Set (NEWTS) is a semi-automatic intermediate maintenance test set used on various Tactical Air Electronic Warfare avionics Weapons Replaceable Assemblies to support Naval Air Stations, carrier (CV) deployments and Reserve requirements.

The Electro Optical Systems Test Set (EOSTS) is a semi-automatic intermediate level maintenance test set that provides fault isolation, verification and alignment of various Tactical Air Electronic Warfare avionics Weapons Replaceable Assemblies. This system fulfills carrier (CV), Naval Aviation Depot (NADEP), and Naval Air Maintenance Training Detachment (NAMTRADET) requirements.

System modification is necessary to maintain technological currency, enhance support, adjust workload and incorporate necessary reliability and maintainability improvements in major, out-of-production items of Automatic Test Equipment (i.e., EOSTS and VAST). Modifications to EOSTS are necessary in order to provide for continued support of A-6, S-3, A-7, P-3, and OV-10 electro-optical systems without sacrificing operational readiness. Similarly, VAST stations, which currently support over 150 weapons replaceable assemblies in the S-3, E-2, F-14 and A-7 aircraft, require improvement and enhancement in order to remain capable of satisfying the more complex testing requirements of new modified airborne avionics.

Aircraft Common Support Equipment

The Aircraft Common Support Equipment element under the Common Ground Equipment line item provides for the initial outfitting of Common Support Equipment under NAVAIR inventory and technical management. These Support Equipment (SE) end items are required for ground testing, servicing, handling, and maintenance of aircraft and their systems. SE items acquired under this budget line item include aircraft propulsion test systems, mobile air conditioners and generators, and aircraft handling equipment.

A comprehensive acquisition plan has been developed for each FY 1989 SE item to: (1) ensure that the equipment is ready for procurement by the budget year; (2) to determine the type of procurement action to be initiated (multi-year, etc.); (3) verify the inventory objective, and; (4) ensure the consideration of required integrated logistic support elements.

The Support Equipment (SE) which will be procured are determined through one of the following processes:

1. The direct result of the SE RDT&E Program (these are items required to support advanced aircraft systems).
2. Reprourement of current SE required to respond to meet outfitting shortages.
3. Improved versions of current SE required to support expanded airborne equipment capabilities or advanced airborne equipment (electrical servicing equipment, ground air conditioners, etc).

4. Major modifications of existing SE.
5. Equipment developed to improve the capability of the Fleet and/or to improve safety (aircraft towing equipment, non-destructive inspection equipment, etc).

To meet requirements in a timely manner, budget authority for \$81.6 million in FY 1989 is requested.

Mobile Maintenance Facilities

Budget authority of \$16.3 million in FY 1989 for Mobile Maintenance Facilities is requested. This program provides for the acquisition of mobile facilities and related equipment to support Marine Corps Expeditionary Forces and Navy contingency/mobility aircraft and weapon system maintenance operations. The concept is to provide rapid-response mobility by the use of relocatable maintenance shelters. Execution of the Marine Corps Aviation mission is dependent on a highly mobile and functionally independent aircraft maintenance support capability.

The basic equipments procured under this sub-line item are the container (Van), air conditioner, heat pump, 60-Hertz electric generator, running gear and static converter 60 Hz to 400 Hz.

Inventory Control Point (ICP) Managed Support Equipment (SE)

ICP Managed SE funds the procurement of end items of Peculiar Support Equipment (PSE) for out-of-production weapon systems, and all Common Support Equipment (CSE) under the budget, procurement and inventory control of the Aviation Supply Office (ASO), Philadelphia, and the Ships Parts Control Center (SPCC), Mechanicsburg, PA. PSE and CSE end items are normally introduced into the Fleet thru NAVAIR development and initial procurement. When design is completed and procurement packages become available, the items are sent to ASO or SPCC inventory management to be funded under this sub-line. Currently, ASO manages some 10,500 individual repairable SE end items whereas SPCC manages some 500 items, primarily cryogenic and armament equipment.

The budget requirements for this element are categorized as follows:

- a. Increased quantities of out-of-production aircraft PSE and CSE required for site outfitings.
- b. Replacement out-of-production aircraft PSE and CSE resulting from wear-out and attrition.
- c. Increased quantities of out-of-production aircraft PSE and CSE required for allowance augmentation.

Sample SE end items procured under this sub-line item include aircraft jacks, aircraft tow bars, hoisting slings, armament handling equipment and maintenance platforms.

To support this program, budget authority of \$65.4 million in FY 1989 is requested.

Headquarters Managed Peculiar Support Equipment

This budget sub-line provides funds to replace certain in-use Peculiar Support Equipment (PSE) assets that are now only marginally effective due to obsolescence or to the unavailability of associated logistics support. Of late 1960 and early 1970 vintage, the applicable vendors no longer manufacture the PSE items or associated repair parts. Alternate sources are not available. As a consequence, a replacement item that is logistically supportable must be designed and produced. In addition, this sub-line provides completion of the design and initial production of (1) certain PSE items that for various reasons were not funded during the production phase of the weapon systems and (2) modification of PSE to extend its useful service life.

Budget authority of \$23.3 million in FY 1989 is requested for this program.

Gas Turbine Compressor (GTC) Replacement

The Amended FY 1989 budget requests \$3.9 million to finance the acquisition of new enclosures for gas turbine powered airstart equipment, and the equipment necessary to support the new gas turbine engines previously procured. This new GTC equipment will replace old mobile airstart units at all Navy/Marine Corps activities with a highly reliable, easily maintained airstart unit that provides compressed air for starting main aircraft engines.

Avionics Support Equipment

The Amended FY 1989 budget request of \$38.5 million will provide for the acquisition of several common avionic equipment items: AN/USM-406(V) Countermeasures Test Set; Nuclear Weapons Release Test Set; Combat Identification System Test Set; Instrument Repair Test Sets, AN/UPN-XXX Transponder Test Set, and Common Data Link Test Set.

The AN/USM-406(V) is an electronic warfare countermeasure test set used in organization-level maintenance support of a variety of EW equipment. The Nuclear Weapons Release Test Set measures dynamic voltages, resistances, and current; conducts complete Aircraft Monitor and Control (AMAC) system analysis; does its own self-check; and performs nuclear station functional release checks. This set is the only means available of checking the unique signal generator circuitry required on modern nuclear-capable aircraft. It can also be programmed to accommodate nuclear check-outs of all Navy aircraft with the use of the sixteen independent programmable modules already designed into the unit. The Combat Identification System Test Set is a new lightweight handheld test set which tests the operation of aircraft-installed transponder systems

by means of detecting and analyzing radiated signals. This test set will be used to test transponder systems which are installed in all Navy and Marine aircraft and will replace the existing AN/APM-378 test set. This test set will be allocated in multiple quantities to every Navy/Marine Organizational level maintenance activity.

The Instrument Repair Test Sets provide Navy/Marine Intermediate level maintenance personnel with the ability to test/verify instrument performance in an airborne environment after repair.

The Transponder Test Set will be used to test transponders which are installed in all Navy and Marine corps aircraft and will replace the existing AN/UPN-137 test set. This test set will be allocated to every Navy/Marine Intermediate level maintenance activity.

The Common Data Link tester is an Operational Level tester which will be used to verify ASW, Link 4, and Link 11 data link systems. The Common Data Link Tester is a replacement for peculiar data link test equipment such as the AN/UKM-3, AN/ASW-25B and other data link systems.

Rapid Deployment Force/Maritime Prepositioned Ships

The Amended FY 1989 budget request of \$6.4 million will procure additional Support Equipment for upgrading Marine Amphibious Brigades 1, 2, and 3. This support equipment (SE) will support aircraft configuration changes, and replace/modernize superceded SE.

Aircraft Salvage Equipment

The Amended budget request of \$8.8 million in FY 1989 will provide for the replacement of existing NS-60 aircraft crash cranes which have been deployed for over 12 years aboard the Navy's CV class carriers, and the HCC-30/50 crash cranes which have been deployed for 13 years aboard LHA/LPH/LPD class ships. During this time, the weight and size of deployed aircraft have increased, such that they exceed the maximum lifting/mobility requirements of these cranes. Aircraft crash removal is seriously debilitated creating an unacceptable operational readiness impact. Further, the aging NS-60 and HCC 30/50 cranes have experienced declining reliability, maintainability and supportability which have seriously degraded their operational effectiveness.

Aircraft Industrial Facilities - FY 1989 \$27.6 million

Funding is required for the following categories of equipment:

	(Dollars in Millions)	
	FY 1988	FY 1989
Calibration Equipment	\$20.5	\$18.0
Contractor Facilities	3.9	9.6
Total Aircraft Industrial Facilities	\$24.4	\$27.6

Calibration Equipment

The calibration program provides the fleet with a means to ensure that Support Equipment (SE) is operational and accurate. Calibration is the process of periodically comparing the performance of items of SE to that of equipment of known and greater accuracy. This accuracy must be traceable to the National Bureau of Standards. Calibration includes any adjustments to the SE that may be required.

Calibration funds are used to procure calibration standards and ancillary equipment required to support aviation SE. Approximately 100 fleet "I" level calibration laboratories, 30 Navy Calibration Laboratories (Depot) and five Standards Laboratories are supported through these procurements. Standards are used to initiate capability, expand capabilities, improve efficiency of production, reduce manhours and to replace obsolete equipment.

Contractor Facilities

The contractor facilities program provides for capital maintenance, modernization, improvements, emergency repairs, and fire protection for government-owned contractor-operated, aircraft-producing industrial plants and for replacement/restoration of government-owned production equipment in use on Navy programs. Facilities management contracts require that the government fund capital maintenance projects as required. These projects apply to Naval Weapons Industrial Reserve Plants (NWRPs) at Bloomfield, Conn.; Dallas, Texas; Bethpage, New York; Calverton, New York; and St. Louis, Missouri.

War Consumables - FY 1989 \$12.3 million

The War Consumables program funds procurement of those airborne equipments which can be suspended, released, or jettisoned from aircraft. FY 1989 funding in this program provides for procurement of external fuel tanks. Items are bought in this account to satisfy inventory objectives which are determined by such factors as the numbers and types of using aircraft, the mission of aircraft, and attrition and pipeline requirements.

Other Production Charges - FY 1989 \$40.6 million

The FY 1989 budget request of \$40.6 million will provide the following:

- (a) \$16.7 for Government-Furnished Equipment (GFE) production support which includes testing services, production data reviews, technical publications, repair of damaged or defective GFE, and procurement of Navy Stock Fund items necessary for fleet installation of technical directives (i.e., minor modification kits and other hardware changes).
- (b) \$6.5 for procurement of certain Navy avionics equipment for installation in Coast Guard aircraft.
- (c) \$3.7 for procurement of reconnaissance and other aerial cameras.
- (d) \$1.2 for procurement of instrumentation packages used by aircraft participating in Mobile Sea Range exercises.
- (e) \$12.5 for pods for the Tactical Aircrew Combat Training System (TACTS).

Special Support Equipment - FY 1989 \$36.4 million

Funding requested in FY 1989 will be used to support a classified program.

COMPARISON OF FY 1988 PROGRAM REQUIREMENTS AS REFLECTED IN FY 1988/89
PRESIDENT'S BUDGET WITH FY 1988 PROGRAM REQUIREMENTS SHOWN IN FY 1988/89 AMENDED PRESIDENT'S BUDGET

	Total Program Requirements per 1988/89 Budget	(In Thousands of Dollars)	Total Program Requirements per 1988/89 Amended Budget	Increase (+) or Decrease (-)
Combat Aircraft.....	\$ 6,449,226		\$ 5,728,174	-\$ 721,052
Airlift Aircraft.....	5,776		-	- 5,776
Trainer Aircraft.....	358,210		368,110	+ 9,900
Other Aircraft.....	369,443		401,918	+ 32,475
Modification of Aircraft.....	668,554		924,016	+ 255,462
Aircraft Spares and Repair Parts.....	1,511,913		1,436,913	- 75,000
Aircraft Support Equipment and Facilities...	561,761		559,168	- 2,593
Reimbursable Program.....	1,545		1,545	-
TOTAL FISCAL YEAR PROGRAM.....	\$ 9,926,428		\$ 9,419,844	-\$ 506,584

EXPLANATION BY BUDGET ACTIVITY

Combat Aircraft (-\$721.1 million)

The changes in this budget activity are primarily associated with the following Congressional action including specific net changes of -\$392.3 million and application of general support reductions of \$208.0 million:

Program	Quantity	Amount	Program	Quantity	Amount
A-6E/F		- \$262.2	AH-1W	+12	+\$ 48.8
EA-6B	+ 6	+ 95.6	SH-60B		- 9.0
EA-6B Adv. Proc.		+ 4.9	SH-60F		- 18.0
AV-8B	- 8	- 141.1	P-3C		- .1
AV-8B Adv. Proc.		+ 86.0	EX Competition	- 8	- 179.8
F-14A+/D		- 36.8	E-2C		- 20.0
F/A-18		- 142.9	SH-2F		- 1.6
F/A-18 Adv. Proc.		- 16.0			
CH/MH-53E (MYP)		- 8.0			

* Does not add due to rounding.

Other actions include a proposed DD1415 Reprogramming Action transferring \$104.0 million from the Aircraft Procurement, Navy appropriation (\$14.1 million and \$89.9 million from A-6 full funding and advance procurement accounts respectively) to the Research, Development, Test and Evaluation, Navy appropriation for development of the A-6 upgrade; decreases due to contract savings totalling \$29.3 million in the EA-6B program (\$5.5 million), the F/A-18 program (\$26.8 million), the SH-60B and E-2C programs (\$1.0 million each); and increases to the AV-8B of \$2.5 million for minor program adjustments and the F-14 program of \$10.0 million for additional cost of the F-14D introduction.

Airlift Aircraft (-\$5.8 million)

Adjustment in this budget activity results from Congressional action eliminating funding for the C-2A program.

Trainer Aircraft (+\$9.9 million)

Change in this budget activity was due to the adverse pound/dollar exchange rate which required an increase to fully fund the T-45A program.

Other Aircraft (+\$32.5 million)

Congressional changes in this budget activity include the following actions including application of the general support reduction:

Program	Quantity	Amount
E-6A		- \$24.0
HH-60	+ 6	+ 57.0

Additionally, a decrease of \$5.5 million to the HH-60 program is for minor pricing adjustments.

Modification of Aircraft (+\$255.5 million)

Congressional action resulted in a net \$246.6 million increase, the adjustments of which are listed below by program:

Program	Amount	Program	Amount
A-6 Series	+\$86.5	P-3 Series	+\$ 9.5
F-16N Series	+ 5.0	ES-3 Series	+ 80.0
SH-60 Series	+ 13.0	E-2 Series	+ 17.2
H-2 Series	+ 35.4		+\$246.6

Other changes include: increases of \$9.9 million to the P-3 Series for Update III Block Upgrade increased cost and \$.2 million to the S-3 Series for minor program adjustments; and a decrease to the E-2 Series of \$1.2 million due primarily to repricing of Block Upgrade.

Aircraft Spares and Repair Parts (-\$75.0 million)

The change in this budget activity results from specific Congressional reductions of \$75.0 million to Initial Spares.

Aircraft Support Equipment and Facilities (-\$2.6 million)

The reduction due to Congressional action in this budget activity was \$1.1 million, and additional decreases of \$1.5 million resulted from several minor program and repricing changes.

COMPARISON OF FY 1988 FINANCING AS REFLECTED IN FY 1988/89
PRESIDENT'S BUDGET WITH FY 1988 FINANCING AS SHOWN IN FY 1988/89 AMENDED PRESIDENT'S BUDGET

	Financing Per FY 1988/89 Budget	Financing Per FY 1988/89 Amended Budget	Increase (+) or Decrease (-)
Program Requirements (Total).....	\$ 9,926,428	\$ 9,419,814	-\$ 506,584
Program Requirements (Service account).....	(9,924,883)	(9,418,299)	(- 506,584)
Program Requirements (Reimbursable).....	(1,545)	(1,545)	(-)
Less:			
Anticipated Reimbursements.....	1,545	1,545	-
Reprogramming from prior year budget plans.....			
Unobligated balance available from prior year to finance new budget plans.....			
Transferred from other accounts.....			
Add:			
Unobligated balance available to finance subsequent year budget plans.....		104,000	+ 104,000
Transferred to other accounts.....			
Appropriation.....	\$ 9,924,883	\$ 9,522,299	-\$ 402,584

EXPLANATION OF CHANGES IN FINANCING

The decrease in program requirements is primarily the result of Congressional reductions of \$402,584,000 from the request to the amount appropriated including distribution of general Congressional assessments of \$250,000,000. An additional financing change includes a proposed DD1415 Reprogramming Action transferring \$104,000,000 to the Research, Development, Test and Evaluation, Navy appropriation.

COMPARISON OF FY 1987 PROGRAM REQUIREMENTS AS REFLECTED IN FY 1988/89
PRESIDENT'S BUDGET WITH FY 1987 PROGRAM REQUIREMENTS SHOWN IN FY 1988/89 AMENDED PRESIDENT'S BUDGET

	Total Program Requirements per 1988/89 Budget	(In Thousands of Dollars) Total Program Requirements per 1988/89 Amended Budget	Increase (+) or Decrease (-)
Combat Aircraft.....	\$ 5,857,888	\$ 5,732,594	-\$ 125,294
Airlift Aircraft.....	98,880	96,264	- 2,616
Trainer Aircraft.....	55,216	65,116	+ 9,900
Other Aircraft.....	317,545	317,247	- 298
Modification of Aircraft.....	1,397,535	1,326,558	- 70,977
Aircraft Spares and Repair Parts.....	1,632,215	1,603,090	- 29,125
Aircraft Support Equipment and Facilities...	617,983	541,493	- 76,490
Reimbursable Program.....	1,500	9,550	+ 8,050
TOTAL FISCAL YEAR PROGRAM.....	\$ 9,978,762	\$ 9,691,912	-\$ 286,850

EXPLANATION BY BUDGET ACTIVITY

Combat Aircraft (-\$125.3 million)

Rescission reductions under Public Law 100-202 totalled \$160.5 million in this budget activity. In addition, a DD1415 reprogramming action transferred \$19.0 million to the Military Personnel, Navy appropriation from this budget activity as follows:

Program	Amount	Program	Amount
A-6E	-\$3.0	AH-1W	-\$ 1.0
EA-6B	- 2.0	SH-60B	- 1.5
AV-8B	- 1.0	P-3C	- 3.5
F-14A+/D	- 1.5	E-2C	- 2.0
F/A-18	- 2.0		-\$19.0
CH/MH-53E	- 1.5		

Other decreases include the following: \$6.6 million from the EA-6B program due to savings on the airframe contract; \$6.6 million from the C/MH-53E based on reduced nonrecurring and other flyaway requirements as well as changes in support requirements; \$1.9 million and \$1.1 million from the AH-1W and E-2C programs respectively for reduced support; \$3.2 million, \$2 million, \$5.8 million, \$1.1 million, \$3.8 million, \$2 million, and \$2.7 million from the advance procurement accounts for the A-6F, EA-6B, AV-8B, C/MH-53E, AH-1W, SH-60B and the E-2C aircraft based on lower longlead requirements than originally envisioned.

Increases accomplished through below threshold reprogramings include \$6.8 million and \$4.2 million to the A-6E and SH-60F programs respectively for increased cost at contract definitization and \$22.0 million for the AV-8B British pound/dollar exchange rate requirement at the time of contract definitization; \$9.4 million to the F-14A/D for increased nonrecurring expense; \$6.9 million to the F/A-18 program for increased cost of FLIRSIM and LAFTA; \$3.9 million to the SH-60B aircraft for procurement of stabilator test sets and second sourcing cost of the 99 channel receiver; \$13.3 million for P-3C program is increased support requirements; \$8.5 million to the SH-2F program for costs associated with incorporation of the T-700 engine; and \$9.7 million and \$2.7 million to the advance procurement accounts of the F/A-18 and SH-60F to finalize longlead contract liability and GFE requirements.

Airlift Aircraft (-\$2.6 million)

A decrease of \$2.6 million from the C-2A program is due to changed support requirements.

Trainer Aircraft (+\$9.9 million)

Change in this budget activity is due to the adverse pound/dollar exchange rate which required an increase in the T-45A advance procurement account of \$9.9 million.

Other Aircraft (-\$.3 million)

Action in this budget activity reflects minor adjustments decreasing the E-6A program (\$.2 million) and E-6A advance procurement (\$.1 million).

Modification of Aircraft (-\$71.0 million)

Rescission reductions under Public Law 100-202 totalled \$9.6 million in this budget activity. Additionally, a DD1415 transferred \$6.0 million to Military Personnel, Navy appropriation from this budget activity as follows:

Program	Amount	Program	Amount
OV-10 Series	-\$1.0	EC-130 Series	-.5
H-46 Series	- 1.0	Cargo & Transport	- 1.0
S-3 Series	- 2.0	Common Avionics	-.5
			<u>-\$6.0</u>

Below threshold reprogramming increases include the following: \$3.1 million to the A-3 Series for conversion of the TA-3B to the EA-3B configuration (OSIP 129-87); \$8.4 million to the SH-60 Series for an increase (\$1.8 million) to the EA-3B configuration (OSIP 50-86) and addition (\$6.6 million) of the Emergency Upgrade (OSIP 134-87); \$5.5 million to the H-1 Series for a follow-on buy of the APR-44 (OSIP 24-82); \$9.9 million to the H-2 Series for an increase (\$8.2 million) to the Block Upgrade (OSIP 118-87) for incorporation of the T-700 engine and addition (\$1.7 million) of the Emergency Upgrade (OSIP 133-87); \$9.3 million to the E-2 Series for the addition of Structural Enhancement Modification (OSIP 121-87); \$4.8 million to the C/KC-130 Series primarily for buyout of the Cargo Handling System (OSIP 19-85); \$4.5 million to the FEWSG Series for additional (\$2.5 million) AN/AST-4 Pods (OSIP 119-83), addition (\$1.1 million) of a follow-on buy of the Comm/Nav Update (OSIP 84-86), a new requirement (\$0.7 million) for the AN/AIR-66 Sea Force (OSIP 131-87) and other changes (\$0.2 million); \$1.4 million to the Power Plant Changes program to support various approved engineering change requirements; \$4.5 million to the Flight Safety Changes account for the A-7 TF-41 Engine HP Turbine Bearing Support Ring and Housing Assembly (\$2.7 million), for H-46 Engine Lubrication System modifications (\$1.1 million), and for a F/A-18 safety requirement (\$0.7 million); and \$1.1 million to the Common ECM account for increased cost of the AN/ALQ-126B (OSIP 110-79).

More than offsetting the above were decreases enumerated below: \$0.5 million from the A-4 Series because of reduced requirements for AN/ALQ-162 Provisions (OSIP 4-83); \$0.5 million from the F-4 Series due to publications requirements slippage on several OSIPs; \$0.6 million from the RF-4 Series due to publication and testing requirements slippage (\$0.4 million) on the AN/ALQ-162 Provisions (OSIP 128-84) and minor changes and repricing on other OSIPs (\$0.2 million); \$1.5 million from the F-14 Series primarily from contract savings realized on the AN/ARC-182 Radio (OSIP 104-86); \$0.9 million from the F-5 Structural Fatigue Mod (OSIP 29-81) and \$1.2 million from the F-18 Correction of Discrepancies (OSIP 11-84) both based on lower than anticipated requirements; \$21.8 million from the H-46 Series due to contract savings (\$4.9 million) on the Engine Air Particle Separator (OSIP 42-83) among others and re-evaluation and slippage (\$16.9 million) of Block Upgrade requirements (OSIP 104-87 and 105-87); \$0.5 million from the H-53 Series after assessments that rephasing of the AN/ALQ-157(V) IR Jammer (OSIP 69-79) and the Aircraft Survivability Improvement (OSIP 133-85) was required; \$5.4 million from the H-3 Series because of lower than anticipated price of the SH-3H/G/D SLEP Block Upgrade (\$2.9 million, OSIP 46-83) and the MK-46 Torpedo Presetter (\$2.5 million, OSIP 19-86); savings of \$1.4 million from the EP-3 CILOP (OSIP 48-81); \$5.8 million from the S-3 Series due primarily to rephasing portions of the Block Upgrade (OSIP 109-87); \$2.7 million from Trainer Aircraft Mods due to lowered pricing (\$1.5 million) on several changes including T-2 AN/ARC-159 Radio (OSIP 103-85), T-2 AN/ARC-118 TACAN (OSIP 104-85) and TC-4C Update (OSIP 116-87) and slippage (\$1.2 million) of the T-34C's Cockpit Windshield (OSIP 80-87) and Maximum Operating Weight Improvement (OSIP 81-87); \$11.5 million from the EC-130 Series due to re-evaluation and assessment of the several changes contemplated; \$3.2 million from the Various Mods due to program delay (\$0.3 million) of the A-7 Seat 4-Line Release (OSIP 92-87),

re-evaluation (\$2.1 million) of the Helo Chem/Bio/Rad System (OSIP 85-86) and a change in requirements (\$.9 million) on the PSSK-7 Survival Kits (OSIP 109-85); \$9.1 million from the P-3 Series due to fewer than anticipated/reduced requirements (\$3.3 million) on the Special Project Aircraft (OSIP 29-82) and the Omnibus RAM Improvements (OSIP 53-85), repricing (\$2.2 million) on the ALR-66 (OSIP 48-83) and Solid State Synchrophaser (OSIP 57-86), hardware and PCSE contract savings (\$2.2 million) on the UHF/VHF Comm. Update (OSIP 60-86) and miscellaneous other mods, and slippage (\$1.4 million) of the Survivability and Vulnerability program (OSIP 114-87); \$13.6 million from Common Avionics Changes due to program delays, re-definition of requirements, repricing and repricing of many of changes; \$12.0 million from Radars based on the need to re-evaluate and define the precise Coast Guard requirement; \$.1 million each from of the F-8 Series and AV-8 Series, \$.2 million from the EA-6 Series and \$.3 million from the A-6 Series due to minor repricing and changes.

Aircraft Spares and Repair Parts (-\$29.1 million)

Changes in this budget activity include a rescission reduction of \$15.2 million pursuant to Public Law 100-202 application of \$5.0 million on a DD1415 Reprogramming Action to the Military Personnel, Navy appropriation and \$3.0 million on a DD1415 Reprogramming Action transfer to Air Force; and \$5.9 million of reductions from a myriad of changes due to a combination of contract savings and repricing of requirements.

Aircraft Support Equipment and Facilities (-\$76.5 million)

Rescission reductions under Public Law 100-202 totalled \$76.6 million in this budget activity and a net increase of \$.1 million due to various and sundry minor changes, program adjustments and repricings.

Reimbursable Program (+\$8.1 million)

The increase in the reimbursable program reflects actual orders \$8.1 million more than originally budgeted.

COMPARISON OF FY 1987 FINANCING AS REFLECTED IN FY 1988/89
PRESIDENT'S BUDGET WITH FY 1987 FINANCING AS SHOWN IN FY 1988/89 AMENDED PRESIDENT'S BUDGET

	Financing Per FY 1988/89 Budget	Financing Per FY 1988/89 Amended Budget	Increase (+) or Decrease (-)
Program Requirements (Total).....	\$ 9,978,762	\$ 9,691,912	-\$ 286,850
Program Requirements (Service account).....	(9,977,262)	(9,682,362)	(- 294,900)
Program Requirements (Reimbursable).....	(1,500)	(9,550)	(+ 8,050)
Less:			
Anticipated Reimbursements.....	1,500	9,550	- 8,050
Reprogramming from prior year budget plans.....			
Unobligated balance available from prior year to finance new budget plans.....			
Transferred from other accounts.....			
Add:			
Unobligated balance available to finance subsequent year budget plans.....		261,900	+ 261,900
Reduction pursuant to P.L. 100-202.....		33,000	+ 33,000
Transferred to other accounts.....			
Appropriation.....	\$ 9,977,262	\$ 9,977,262	-

EXPLANATION OF CHANGES IN FINANCING

The decrease in financing is reflected in the congressionally mandated rescission reduction of \$261,900,000 and transfer from the appropriation of \$33,000,000 including DD1415 reprogramming actions transferring \$30,000,000 to the Military Personnel, Navy appropriation and \$3,000,000 to the Air Force. An additional change in financing is an increase to the Reimbursable account of \$8,050,000 due to higher actual collections than originally anticipated.

Status of Aircraft Modification Programs
FY 1986 Modification of Aircraft
Programs as of 31 December 1987
(Thousands of Dollars)

Program	Appropriated 1/	Reprogramming	Total Program Value 2/	Total Obligations	Total Expenditures
A-3 Series	4,815	(1,262)	3,553	3,407	655
A-4 Series	10,272	(284)	9,988	9,987	1,998
A-6 Series	230,654	(57,318)	173,336	171,574	49,456
EA-6 Series	37,036	(6,587)	30,449	30,342	15,260
A-7 Series	7,569	(146)	7,423	7,422	5,182
AV-8 Series	8,123	7,256	15,379	15,378	688
F-4 Series	3,712	(1,204)	2,508	2,507	274
RF-4 Series	1,358	516	1,874	851	81
F-14 Series	158,752	(39,286)	119,466	115,787	67,497
F-8 Series	96	(96)	0	0	0
F-5 Series	1,614	(1,456)	158	157	33
OW-10 Series	47,246	(27,941)	19,305	5,227	3,918
F-18 Series	15,458	(3,429)	12,029	11,278	1,153
H-46 Series	134,995	(2,036)	132,959	132,741	32,952
H-53 Series	33,329	(5,033)	28,296	24,112	5,196
SH-60 Series	1,569	(849)	720	719	-
H-1 Series	70,105	1,542	71,647	33,265	2,051
H-2 Series	32,498	(20,413)	12,085	10,975	3,873
H-3 Series	92,786	(24,042)	68,744	65,733	26,317
EP-3 Series	36,975	(3,795)	33,180	32,996	11,820
P-3 Series	389,023	(58,894)	330,129	325,821	106,889
S-3 Series	281,452	(22,127)	259,325	255,439	86,432
E-2 Series	56,876	(2,962)	53,914	53,914	26,075
Trainer A/C	4,983	(2,339)	2,644	2,104	1,208
Cargo & Transport A/C	6,842	(1,877)	4,965	4,818	1,043
EC-130 Series	5,981	(5,593)	388	387	165
C/KC-130 Series	10,948	(1,102)	9,846	8,297	2,085
FEWSG	21,757	3,274	25,031	21,885	5,905
Various	4,611	(790)	3,821	3,504	2,232
Power Plant Changes	8,002	(3,759)	4,243	2,708	165
Misc. Safety Changes	4,159	(2,517)	1,642	1,641	429
Common ECM Equipment	189,098	(77,461)	111,637	104,194	11,836
Common Avionics Changes	23,927	2,287	26,214	24,667	4,467
TOTAL B.A. 5	1,936,621	(359,723)	1,576,898	1,483,837	477,335

1/ Includes application of congressional general reductions.

2/ FY 1986 Column of FY 1988/89 President's Budget.